NOTES ICHTYOLOGIQUES

FIRST RECORDS OF TWO RARE MEDITERRANEAN GOBIIDAE IN THE NORTHERN TYRRHENIAN SEA.

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Corcyrogobius liechtensteini (Kolombatovic, 1891) and *Gammogobius steinitzi* Bath, 1971, are two gobiid species, each known to date only from two localities in the Mediterranean Sea. *C. liechtensteini*, originally described from the Adriatic Sea near Split (Dalmatia) (Kolombatovic, 1891) and *G. steinitzi*, described from the western Mediterranean near Marseille (Bath, 1971), have both been recently rediscovered at the Balearic Island of Ibiza (Ahnelt *et al.*, 1994; Ahnelt and Patzner, 1996). *C. liechtensteini* was for more than 100 years known only from its syntypes. Redescribed and placed in the new genus *Corcyrogobius*, this small gobiid fish represents not only one of the rarest but also one of the smallest gobiids of the Mediterranean (Miller, 1972). Known from three types only until its rediscovery, *G. steinitzi* also belongs among the rarest fishes of this sea.

Both species occupy important positions within the phylogeny of the marine Mediterranean gobiid fishes. While *G. steinitzi* is assumed to be closely related to *Zebrus zebrus* (Risso, 1826), a species placed in a central position within a large group of north-eastern Atlantic-Mediterranean gobiids (Bath, 1973; Miller, 1977), *C. liechtensteini* seems to be related to forms which are mainly distributed outside the Mediterranean, along the Atlantic coast of West Africa (Miller and Tortonese, 1968; Miller, 1972, 1988). Thus *C. liechtensteini* possibly belongs to elements of the modern eastern Atlantic-Mediterranean gobiid fauna whose ancestor lived in the marine Atlantic-Boreal province of the European Neogene, invading the Mediterranean after its desiccation at the end of the Messinian more than 5 mya. Its closest relative, *C. lubbocki* Miller, 1988, has been described from the Gulf of Guinea, West Africa (Miller, 1988). A similar situation is found within the related genus *Vanneaugobius* (Miller, 1972). To date this genus is represented by three species of which only one is reported to occur in the Mediterranean Sea (Van Tassell *et al.*, 1988).

In contrary the genus *Gammogobius*, with its only representative *G. steinitzi*, seems to have evolved in the Mediterranean Sea, from an ancestor which had invaded its refilled basins during the early Pliocene.

Specimens of both species were collected by one of us (RAP) in September 1996 in small caves at a depth of 10 m at the Island of Giglio, south of Elba (northern Tyrrhenian Sea). They are deposited in the collection of the Institut für Zoologie der Universität Wien (IZUW).

The four specimens (two females and two juveniles) of *C. liechtensteini* (IZUW G/9.1996/1-4), 14.3-17.5 mm SL, are characterized by: head lateral-line system with 6 transverse rows of suborbital papillae, last row represented by a single papilla near pore α; 4 before, none below longitudinal row **b**; anterior oculoscapular canal present, with two inter-orbital pores (λ and κ) and with pore β present on both sides (Ahnelt *et al.*, 1994); posterior oculoscapular and preopercular canals absent. Fins: D1 VI, D2 I/9-10, A I/8, C 13-14, P 15-16, V I/5+5/I; first spine most elongate of first dorsal fin spines; rear edge of pelvic disc emarginate, fifth ray shorter than fourth. Scales ctenoid, LL 29-30 and TR 8. Colour preserved: brown with distinct reticulate pattern along scale edges; inconspicuous lateral dark brown bands; branchiostegal membrane on each side with dark blotch below vertical of preopercle.

The specimen of *G. steinitzi* (IZUW G/9.1996/5), 33.9 mm SL, is characterized by: head lateral-line system with seven transverse rows of sub-orbital papillae, last row represented by a single papilla near pore α; 4 rows before and one below longitudinal row **b**; anterior oculoscapular canal present, with all pores; posterior oculoscapular and preopercular canals absent. Fins: D1 VI, D2 I/8, AI/8, C 14, P 16, V I/5+5/I; pelvic disc rounded. Scales mostly ctenoid, LL 34 and TR 10; cycloid scales on the ventral side of the abdomen and on the base of pectoral fin. Colour preserved: brownish with 6 lateral vertical narrow pale bands, the anterior 4 ending below dorsal fin bases; black spots along dorsal fin bases.

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The specimens of both species from Giglio correspond in morphometrics (Table I), meristics, in pattern of sensory canals and free neuromasts of the lateral-line system (Tables II, III) and in colouration with those from the Balearic Island of Ibiza (Ahnelt and Patzner, 1996; Ahnelt, unpubl. data). Differences in the total number of the second dorsal and the anal fin rays and in the colouration of *G. steinitzi* compared to the values given by Bath (1971) are likely to result from a different method of counting the last bifid dorsal and anal fin rays and from the limited number of specimens on which the original description of this species is based.

Table I. - Body proportions of *Corcyrogobius liechtensteini* (three largest specimens, IZUW G/9.1996/1-4) and *Gammogobius steinitzi* (IZUW G/9.1996/5) from the Island of Giglio, northern Tyrrhenian Sea. Values for *G. steinitzi* are range and for *C. liechtensteini* are range, and in parentheses, mean and standard deviation.

		***Corcyrogobius liechtensteini* (n = 3)**	***Gammogobius steinitzi* (n = 1)**
SL (mm)		14.3 - 17.5	33.9
%SL,	H	31.9 - 32.8 (32.5, 0.4)	33.5
	Hw	14.0 - 14.8 (14.5, 0.3)	13.7
	SN/D1	41.4 - 41.9 (41.6, 0.2)	39.7
	SN/D2	59.7 - 60.0 (59.8, 0.2)	58.5
	SN/AN	56.9 - 57.6 (57.2, 0.3)	56.2
	SN/A	61.3 - 61.9 (61.5, 0.2)	60.9
	SN/V	31.4 - 32.8 (32.1, 0.6)	31.3
	CP	23.4 - 24.1 (23.7, 0.3)	25.9
	D1b	11.8 - 12.1 (11.9, 0,1)	11.8
	D2b	22.0 - 23.7 (22.8, 0.7)	19.8
	Ab	16.2 - 17.2 (16.7, 0.4)	15.5
	Cl	28.8 - 32.5 (30.5, 1.5)	22.9
	Pl	30.9 - 34.3 (32.9, 1.4)	25.3
	Vl	30.7 - 32.6 (31.7, 0.8)	25.9
	Vd	18.4 - 19.2 (18.8, 0.4)	19.9
	Ad	17.9 - 19.1 (18.5, 0.5)	17.0
	Aw	10.4 - 11.2 (10.9, 0.3)	11.1
	CPd	12.6 - 13.3 (12.9, 0.3)	10.1
	V/AN	25.1 - 26.0 (25.8, 0.5)	25.6
%CP,	CPd	52.2 - 56.0 (54.1, 1.6)	39.0
%H,	SN	25.1 - 26.0 (25.7, 0.5)	30.6
	E	31.5 - 32.8 (32.4, 0.6)	27.3
	PO	47.0 - 48.0 (47.5, 0.4)	46.2
	CHd	14.4 - 15.1 (14.7, 0.3)	19.3
	Hw	44.0 - 44.8 (44.5, 0.4)	41.1
	UJ	26.9 - 28.3 (27.6, 0.6)	36.6
%E,	I	13.7 - 15.3 (14.6, 0.7)	14.8
%V / AN,	Vl	120.1 - 125.6 (122.7, 2.3)	100.9

Thus *C. liechtensteini* and *G. steinitzi* are new elements in the Italian marine fauna. Such records indicate that many of the rare gobiids from the Mediterranean are only rarely found. This is due to their small size, their economic insignificance, their cryptobenthic behavior and sometimes also to misidentification. With the occurrence of these two species in the Tyrrhenian Sea it is likely that both are widely distributed at least in the western Mediterranean. New records are expected, especially for *C. liechtensteini* between the Adriatic (Ahnelt *et al.*, 1994) and the Tyrrhenian Seas. The discovery of this species at Giglio makes a disjunct distribution of *C. liechtensteini* very unlikely. Like in other gobiid fishes of the Mediterranean the rarity of this species is likely to be shown to be more apparent than real especially after searching by SCUBA-techniques.

Abbreviations

Morphometrics (Table I). - Ab, anal fin base; Ad and Aw, body depth and width; Cl, caudal fin length; CHd, cheek depth; CP and CPd, caudal peduncle length and depth; D1b and D2b, first and second dorsal fin bases; E, eye diameter; H and Hw, head length and width; I, interorbital width; Pl, pectoral fin length; PO, postorbital length; SL, standard length; SN, snout length;

Table II. - Numbers of sensory papillae in head lateral-line system of *Corcyrogobius liechtensteini* (three largest specimens, IZUW G/9.1996/1-4). Values are range of the left side and, in parentheses, of the right side.

Corcyrogobius liechtensteini					
SL (mm) 14.3 - 17.5, n = 3					
PO	r	2-3 (2-3)	**OS**	x1	3-4 (3-4)
	s1	1 (1)		x2	1 (1)
	s2	1 (1)		z	3-4 (4)
	s3	2 (2)		q	2 (2)
	c^2	5 (4-5)		y	1 (1)
	c^1	3 (3-4)		tr	2 (2)
	c_2	3 (3)		as1	3 (3)
	c_1	1 (1)		as2	2-3 (3)
SO	1	3-4 (3)		as3	3-4 (3-4)
	2	3 (2-3)		la1	1 (1)
	3/4	3-4 (3)		la2	1 (1)
	5	7-9 (7-9)	**OP**	ot	8-10 (9-11)
	6	2-3 (3)		os	d-4 (3)
	7	1 (1)		oi	2-3 (2-4)
	b	3-5 (4-5)	**AD**	n	4-5 (4-5)
	d	7-10 (7-9)		g	2-3 (3)
PM	e	14 (13-15)		o	1-2 (1-2)
	i	11-13 (11-13)		m	1-2 (1)
	f	3-4 (3-4)		h	4-6 (4-6)

Table III. - Numbers of sensory papillae in head lateral-line system of *Gammogobius steinitzi* (IZUW G/9.1996/5). Values are range of the left side and, in parentheses, of the right side.

Gammogobius steinitzi					
SL (mm) 33.9					
PO	r	5 (6)	**OS**	x1	11 (11)
	s1	4 (4)		x2	5 (6)
	s2	5 (6)		z	7 (10)
	s3	4 (6)		q	4 (5)
	c^2	11 (9)		y	3 (0)
	c^1	3 (4)		tr	7 (7)
	c_2	7 (7)		as1	8 (6)
	c_1	3 (3)		as2	8 (8)
SO	1	11 (10)		as3	8 (10)
	2	9 (9)		la2	4 (4)
	3	9 (8)		la3	5 (5)
	4	9 (10)	**OP**		
	5s	7 (7)		ot	20 (23)
	5i	10 (11)		os	6 (11)
	6	7 (8)		oi	7 (7)
	7	1 (1)	**AD**		
	b	11 (10)		n	10 (3)
	d	25 (25)		g	6 (4)
PM	e	51 (49)		o	4 (2)
	i	19 (18)		m	3 (4)
	f	10 (11)		h	10 (10)

SN/A and SN/AN, snout to anal fin origin and anus; SN/D1 and SN/D2, snout to origin of first and second dorsal fins; SN/V, snout to pelvic disc origin; UJ, upper jaw length; V/AN, pelvic disc origin to anus; VI, pelvic disc length.

Meristics. - A, anal fin; C, caudal fin; D1, D2, first and second dorsal fins; LL, scales in lateral series, P, pectoral fin; TR, scales in transversal series; V, pelvic disc.

Lateral-line system (Tables II, III). - Series of sensory papillae: AD, anterior dorsal; OP, opercular; OS, oculoscapular; PM, preoperculo-mandibular; PO, preorbital; SO, suborbital.

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